2. REGIONAL CONTEXT

Section 2 provides information on physical features and land use for the five-county region in which the INL Site is located. Maps showing current conditions and anticipated conditions in 2035 follow each section of narrative.

2.1 Physical and Surface Interface

The INL is located in southeast Idaho, near the northeast end of Idaho's Snake River Plain, which extends in a broad arc from the Idaho-Oregon border on the west to the Yellowstone Plateau on the east. The Snake River Plain is a broad, fairly flat basin with a floor of basalt lava flows and sediments and is characterized by a semiarid environment (see Figure 2-1).

The plain transects and sharply contrasts with the adjacent mountainous country. Surface elevations on the plain decrease gradually from about 6,500 ft above sea level near Yellowstone National Park to about 2,100 ft above sea level near the Idaho-Oregon border. The summits of mountains surrounding the plain reach more than 12,000 ft in elevation.

There are a number of rivers on the Snake River Plain. The Snake River is located about 50 miles east of the INL Site. The Big Lost River originates west of the Site and drains an area of about 1,400 square miles. It enters the INL Site on the southwest end, flows east, then flows northward, and terminates in a playa called the Big Lost River Sinks in the northwest portion of the INL Site, where the water evaporates or infiltrates into the ground.

The Snake River Plain Aquifer, consisting primarily of basalts and sediments and the groundwater stored in these materials, is among the nation's largest aquifers. It extends nearly 200 miles through eastern Idaho, encompasses about 9,600 square miles, and stores 1–2 billion acre-feet of water, roughly the same volume contained in Lake Erie. In 1991, the EPA designated the Snake River Plain Aquifer a sole-source aquifer. A sole-source aquifer is one that supplies at least 50% of the drinking water consumed in the area overlying the aquifer. The Snake River Plain Aquifer provides the sole source of drinking water for more than 280,000 people in southeastern Idaho. The State of Idaho, through the Idaho Administrative Procedures Act, has designated the Snake River Plain Aquifer as a general-resource-category aquifer. As such, activities that have the potential to degrade the aquifer "shall be managed in a manner which maintains or improves groundwater quality through the use of best management practices and best practical methods to the maximum extent practicable" (IDAPA 58.01.11.301.02.a). About 9% of the aquifer lies beneath the INL Site at depths ranging from 200 to over 900 ft. The Snake River Plain Aquifer emerges in springs along the Snake River between Milner and Bliss, Idaho.

A map showing the location of the INL Site in relation to major physical features in the region is provided as Figure 2-2. There is no difference between the current state and end state, as no changes in the Site's boundaries or regional physical features are anticipated.

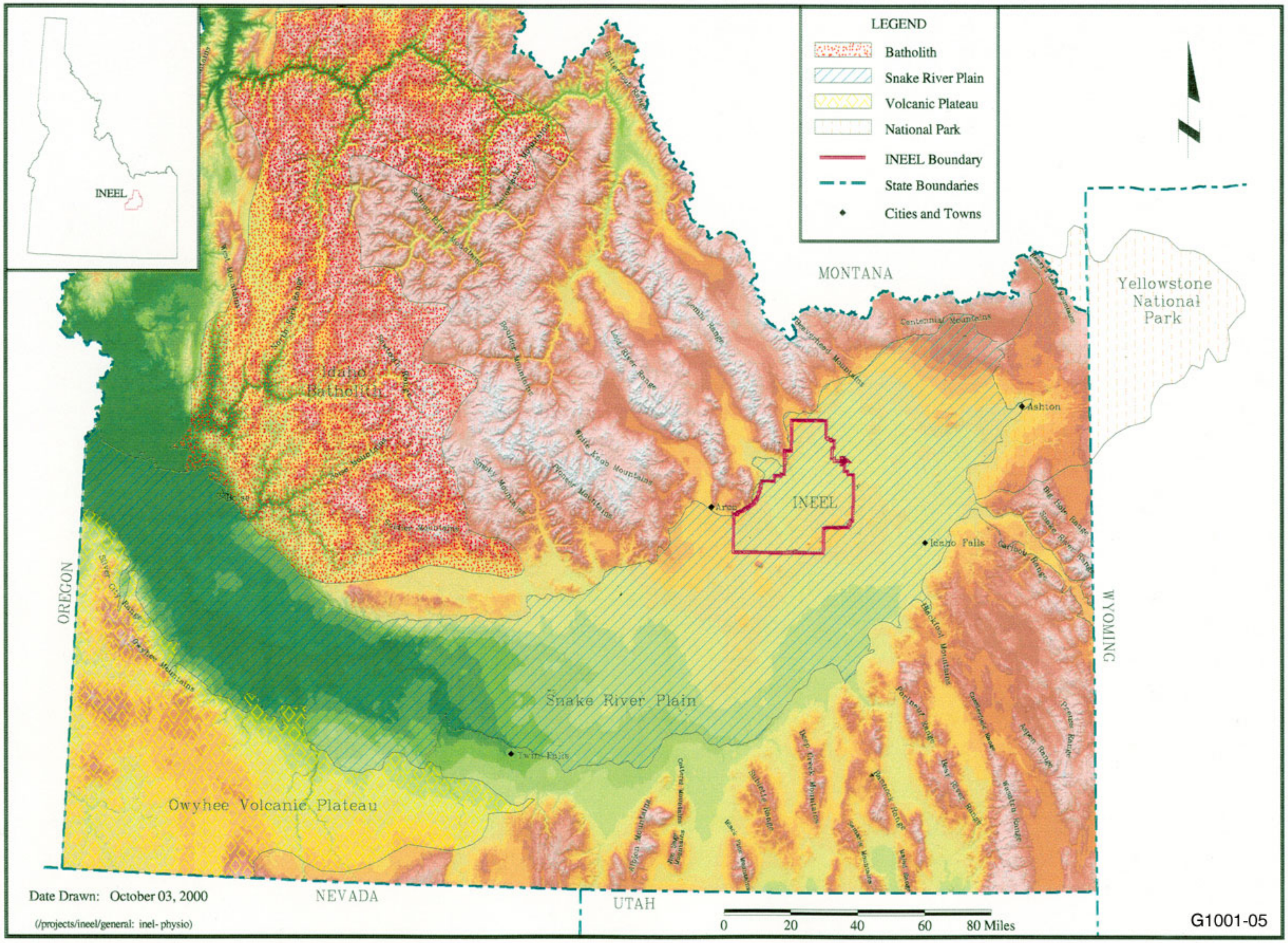

Figure 2-1. The Snake River Plain.

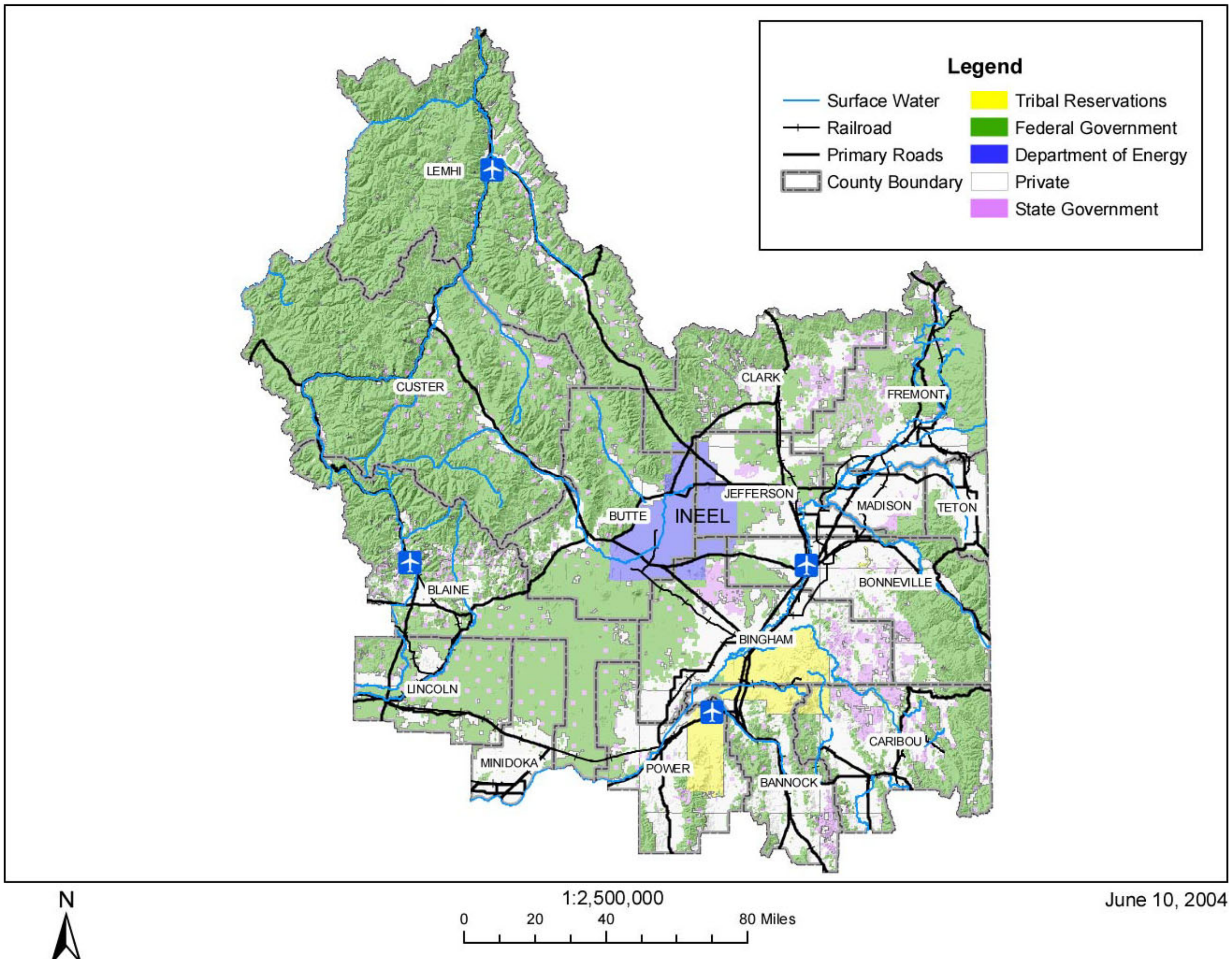

Figure 2-2. Regional physical and surface interface—current state.

2.2 Human and Ecological Land Use

Approximately 77% of land in the five counties surrounding the INL is considered open rangeland, forest, or barren. Roughly 21% of the land in these counties is used for farming. Major crops produced on land surrounding the INL are wheat, alfalfa, barley, potatoes, oats, and corn. Land outside the INL boundary is primarily U.S. Department of the Interior Bureau of Land Management (BLM) controlled with small pockets of state-controlled or private land. About 75% of land next to the INL is owned by the federal government and administered by the BLM. Land uses on this land consist of grazing, wildlife management, mineral and energy production, and recreation. The State of Idaho owns approximately 1% of the adjacent land. State-owned lands also are used for grazing, wildlife management, and recreation. Private lands near the INL are used primarily for grazing and farming. Irrigated farmlands make up about 24% of land bordering the INL.

Several small rural communities are scattered around the borders of the INL: Howe, Mud Lake, Atomic City, Butte City, and Arco. The larger communities of Rexburg, Idaho Falls, Blackfoot, and Pocatello are located to the east and southeast of the INL Site. The Fort Hall Indian Reservation is located approximately 30 miles southeast of the INL Site. The Fort Hall Indian Reservation is home to the Shoshone-Bannock Tribes. The Tribes occupied the region before European arrival and used the area as their aboriginal hunting and gathering grounds.

Recreational activities in the five-county region around the INL include hunting, fishing, boating, hiking, cross-country skiing, and camping. Major recreational and tourist attractions in the general region surrounding the INL Site include the Craters of the Moon National Monument, Sawtooth National Recreation Area, Yellowstone National Park, Grand Teton National Park, and the Snake River.

Agricultural and open lands are the dominant types of land in the five counties surrounding the INL Site. When combined, these two land types account for 90% of the area. About 1.2 million acres in the five-county region are used for cropland. This region also produces about 105,000 head of livestock annually.

The Snake River Plain Aquifer is a major component of the region's agricultural industry. Groundwater use on the Snake River Plain includes irrigation, food processing, aquaculture, and domestic, rural, public, and livestock water supplies.

Maps showing regional land use for the current and end state are provided as Figures 2-3 and 2-4. The maps are identical, with the exception of anticipated population growth in some communities. No significant changes in the regional land use are expected.

Some individuals have expressed concern about potential contamination of crops in the vicinity of the INL. Milk, wheat, potatoes, and lettuce are monitored for radionuclides. The INL conducts extensive on-Site and off-Site monitoring to measure environmental impacts of Site activities. The monitoring programs include air monitoring; surface and groundwater monitoring; analysis of agricultural products (e.g., milk, lettuce, wheat, potatoes, and sheep), muscle tissues of game animals (e.g., ducks, mule deer, elk, and pronghorn), and soil; and measurement of potential radiation exposure using thermoluminescent dosimeters. Each year, the results of these monitoring programs are published annually in a site environmental report. The most recent data are published in the *Idaho National Engineering and Environmental Laboratory Site Environmental Report for Calendar Year 2002* (DOE-ID 2003a). Results of monitoring programs for 2002 indicate that radioactivity from current INL operations could not be distinguished from worldwide fallout and natural radioactivity in the region surrounding the INL. Radioactive material concentrations in the off-Site environment were below State of Idaho and federal health protection guidelines. Potential doses to the maximally exposed individual and to the surrounding population were estimated to be well below the applicable regulatory limit and far less than doses resulting from background radiation (DOE-ID 2003a). Results of 2002 monitoring are summarized in Table 2-1. Additional information is available in *Idaho National Engineering and Environmental Laboratory Site Environmental Report for Calendar Year 2002*, which can be found at www.stoller-eser.com.

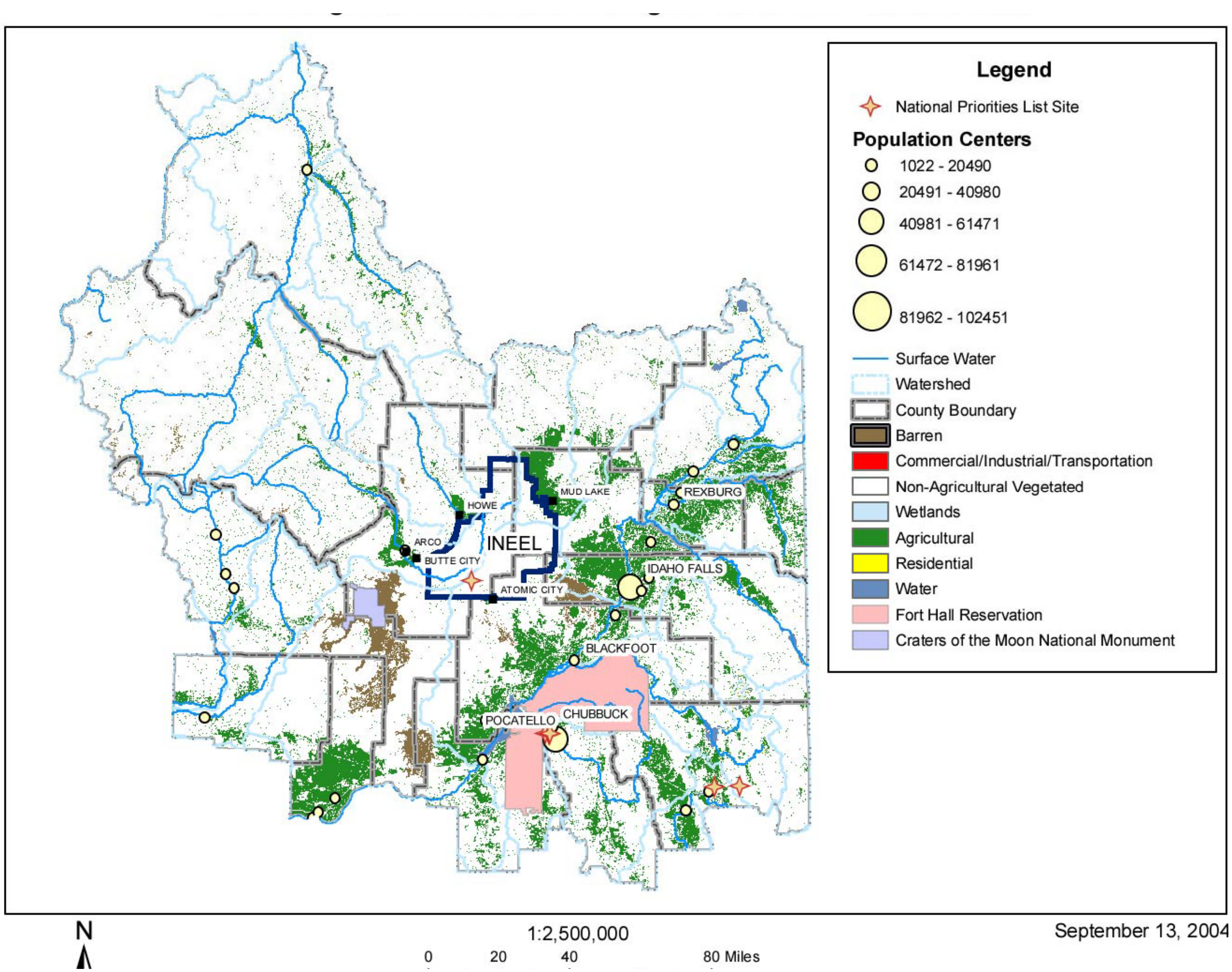

Figure 2-3. Regional human and ecological land use—current state.

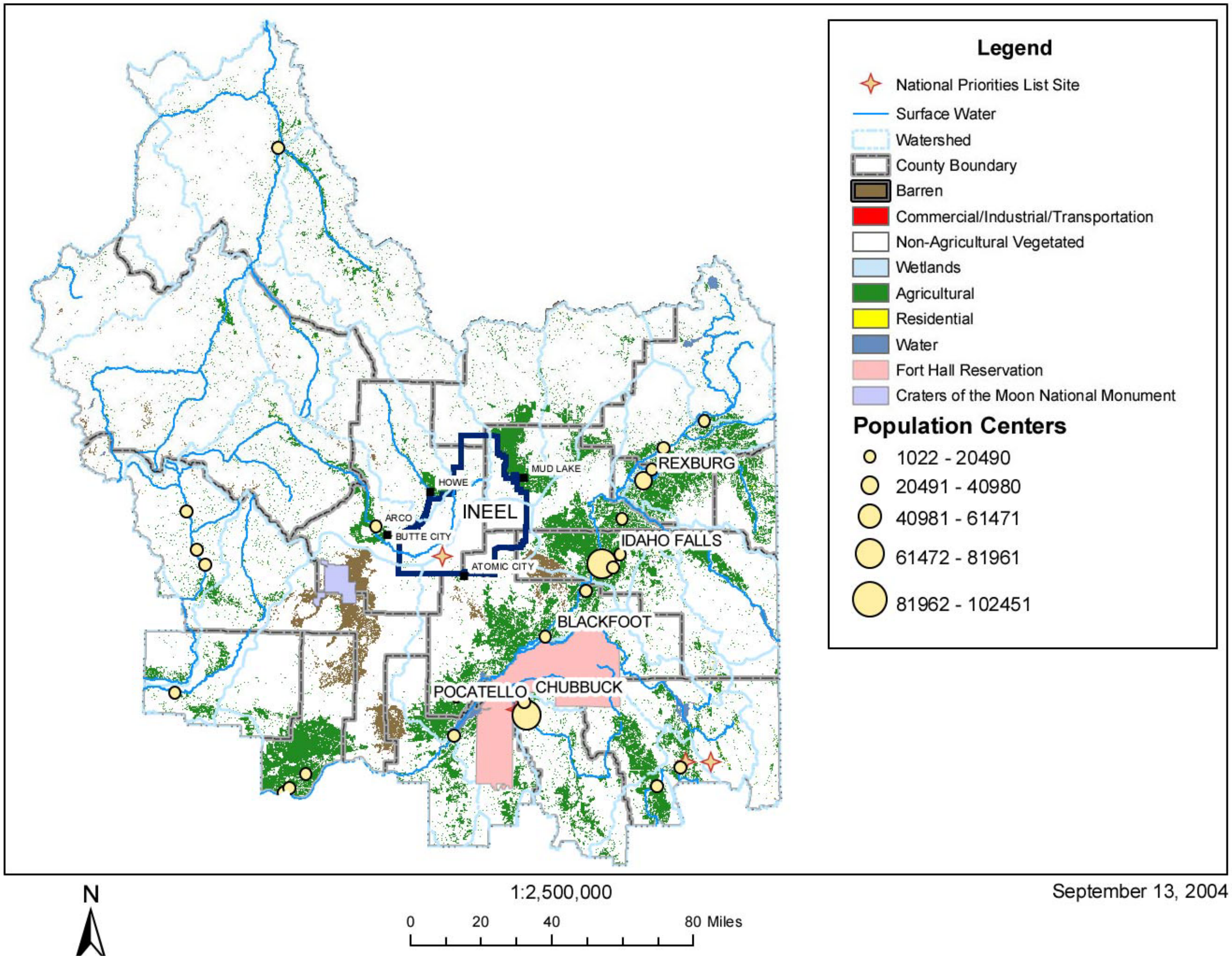

Figure 2-4. Regional human and ecological land use—end state.

Table 2-1. Boundary, onsite, and offsite radiological environmental monitoring results for 2002.

Media	Sample Type	Analysis	Results
Air	Charcoal cartridge	Radioiodine	Iodine-131 was not detected in any individual charcoal cartridge collected.
	Particulate filter	Gross alpha and gross beta activity, gamma-emitting radionuclides, strontium-90, americium-241, plutonium-238, and plutonium-239/240	In general, gross alpha and gross beta activities show levels and seasonal variations not attributable to INL releases. Seven of the weekly gross beta results showed statistical differences between boundary and distant locations. In all cases, the differences were attributed to natural variation or to inversion conditions. All measurements of specific radionuclides were well below the DCG for radiation protection and within historical results.
	Atmospheric moisture	Tritium	Tritium was detected in 34 of 44 samples. Measurements were well below the DCG and within historical concentrations.
	Precipitation	Tritium	Tritium was detected in 20 of 39 precipitation samples. Measurements were well below the DCG and within historical measurements made at the INL and within EPA, Region 10, (ID, OR, WA, and AK) historical levels.
Water	Surface water	Gross alpha and gross beta activity and tritium	Gross alpha activity was not detected in any sample. Nine of 12 samples had measurable gross beta activity below the EPA screening level. Tritium was detected in two samples. The highest level measured was below the EPA MCL.
	Drinking water	Gross alpha and gross beta activity and tritium	Gross alpha activity was detected in one sample at a concentration below the EPA MCL. Gross beta activity was detected in all samples at levels within background levels and below the EPA screening level. Tritium was detected in three drinking water samples at levels well below the EPA MCL.
Agricultural products	Milk, lettuce, wheat, potatoes, and sheep	Gamma-emitting radionuclides and strontium-90	Cesium-137 and strontium-90 were detected in samples at levels consistent with fallout. Iodine-131 was detected in one milk sample at a level below the DCG for water.

Table 2-1. (continued).

Media	Sample Type	Analysis	Results
Game animals	Ducks, mule deer, elk, and pronghorn	Gamma-emitting radionuclides, strontium-90, and specific actinides. Iodine-131 in deer, elk, and pronghorn thyroids	Cesium-137 was detected in muscle samples of mule deer, elk, and pronghorn at levels consistent with fallout. Human-made radionuclides were detected in at least one muscle tissue in five of 11 ducks collected from INL wastewater ponds. The potential dose from consumption of ducks with the highest concentrations was calculated to be 0.004 mrem (0.001% of 352 mrem, the average annual dose received from background sources).
Soil	Offsite soil composite samples	Gamma-emitting radionuclides, strontium-90, and the same actinides analyzed in particulate filters	Radionuclide concentrations detected in soil collected at boundary and distant locations were not statistically different and were consistent with historical measurements. The concentrations are most likely caused by weapons testing fallout.
Radiation exposure	Thermoluminescent dosimeters	Gamma radiation	Exposures at boundary and distant locations using environmental dosimeters were similar and showed levels consistent with previous years and background.
DCG = derived concentration guide EPA = U.S. Environmental Protection Agency INL = Idaho National Laboratory MCL = maximum contaminant level			

3. SITE-SPECIFIC DESCRIPTION

Section 3 provides information on physical characteristics, human and ecological land use, legal ownership, and population of the INL Site and adjacent lands. Maps showing current conditions and anticipated conditions at the end state follow each section of narrative.

3.1 Physical and Surface Interface

A map showing the physical configuration of the INL Site is provided as Figure 3-1.

INL land consists of flat-to-gently-rolling, high-desert terrain that lies about 5,000 ft above sea level. Isolated buttes on INL land reach 6,572 ft. Vast sagebrush flats with outcroppings of basalt rock dominate the INL landscape. The climate of the high desert environment of the INL is characterized by sparse precipitation (less than 9 in./year), warm summers (average daily temperature of 60.3°F), and cold winters (average daily temperature of 22.6°F). Solar heating can be intense with extreme day-to-night temperature fluctuations.

Surface water at the INL Site is generally scarce. Intermittently flowing waters in the Big Lost River and Birch Creek flow to the Big Lost River Sinks in the northwest portion of the INL Site, where the water evaporates or infiltrates into the aquifer. Typically, however, irrigation demands drain these streams before they reach the Site. Water from Birch Creek is diverted during the nonirrigation season to produce hydropower before reaching the INL Site. Excess water from the hydropower plant flows onto the Site through a canal. Surface water occurs in channels and playas across the Site during spring run-off and provides an important water source for the local fauna and migratory species. No surface water flows off the INL Site.

Although surface water is scarce at the INL Site, subsurface water is plentiful. The Site lies over part of the Snake River Plain Aquifer, the largest aquifer in Idaho and one of the most productive in the nation. The aquifer is the source of water used at the INL Site. Beneath the INL, the aquifer moves laterally to the southwest at a rate of 5–20 ft/day. Protection of the aquifer is one of the primary environmental concerns governing INL operations. The Site has an extensive network of wells used for monitoring perched groundwater and the aquifer.

Approximately 98% of land on the INL is open and undeveloped. The INL Site is crossed by several highways, a rail system, and a high-voltage power distribution loop. Public access is restricted by fences, signs, and a number of manned guard gates. Although the total INL land mass is 890 square miles, most of the work at the INL is performed within the Site's primary facility areas, which are summarized below:

- TAN—TAN was originally built to develop and test designs for nuclear-powered aircraft engines. Other subsequent missions included reactor safety testing and behavior studies and storage of material from the 1979 Three-Mile Island reactor accident. Now, the major project at TAN is the Specific Manufacturing Capability, which develops and manufactures armor for U.S. Army military vehicles.

- INTEC—Facilities at INTEC are used to store spent nuclear fuel, hazardous waste, mixed waste, and radioactive waste; treat radioactive waste; and develop waste management technologies. Remaining work at INTEC includes treating and disposing of radioactive liquid waste in the tank farm, identifying a disposal path for the calcine, and consolidating spent nuclear fuel into dry storage.

- RWMC—RWMC provides a disposal facility for low-level waste (LLW) at the SDA and interim storage and management for approximately 62,000 m^3 of transuranic waste in the Transuranic Storage Area (TSA). The stored waste will be shipped to the Waste Isolation Pilot Plant in New Mexico. Mixed transuranic waste in storage will be prepared for shipment at the newly constructed Advanced Mixed Waste Treatment Facility.

- Central Facilities Area (CFA)—CFA is the main service and support center for the INL Site's programs and facilities. Support services include environmental monitoring and calibration laboratories, communication systems, security, fire protection, medical services, warehouses, a cafeteria, vehicle and equipment pools, power distribution, bus operations, and vehicle maintenance. CERCLA cleanup activities at this area are complete.

- Waste Reduction Operations Complex (WROC)/Power Burst Facility (PBF) and Auxiliary Reactor Area (ARA)—This area originally supported two reactor facilities: PBF and ARA. DD&D of the PBF reactor and supporting facilities is in progress. The WROC area included a number of waste storage facilities and a mixed waste incinerator. The EM facilities at WROC have undergone RCRA and DD&D closure, and the remaining buildings and infrastructure have been transferred to NE for future mission use. CERCLA cleanup at this area will be completed by the end of 2004.

- TRA—The primary mission at TRA is researching the effect of radiation of materials and producing radioisotopes for medical industry and research applications through operation of the ATR. Spent nuclear fuel is stored under water in the ATR canal. CERCLA cleanup activities at TRA are nearly complete.

- ANL-W—For the past 50 years, ANL-W has been the prime center in the U.S. for research on advanced reactor systems and their associated technologies. The mission of the laboratory is to conduct basic and applied research that supports these systems, with a current emphasis on development of new ways to deal with spent nuclear fuel.

- Naval Reactors Facility (NRF)—Bechtel Bettis, Inc., operates NRF for the DOE Office of Naval Reactors. NRF is located on the INL Site, 6.7 miles from the nearest INL boundary. The developed portion within the security fence covers approximately 84 of the 4,400 acres of NRF. NRF is not accessible to the general public.

  NRF examines developmental nuclear fuel material samples, naval spent fuel, and irradiated reactor plant components and materials. The knowledge gained from these examinations is used to evaluate the performance of existing reactors and to improve reactor core designs. The examination of spent fuel at NRF has led to the design of longer-lived cores, which improves ship operations, reduces lifetime costs, and results in the creation of less spent fuel requiring disposition. NRF also is preparing spent nuclear fuel for dry storage. Historically, NRF operated prototype reactors for training naval students.

  NRF will remain in operation for many years. No change in land use is planned. Active cleanup activities were completed on June 3, 2003, in accordance with CERCLA cleanup standards, and cap construction was completed in July 2004. The NRF cleanup criteria were risk based, met the applicable CERCLA criteria, and are protective of human health and the environment. NRF obtained EPA and State of Idaho agreement by way of a ROD. The same cleanup criteria, or other criteria at least as protective and with regulatory oversight, will be used for any necessary future cleanup at NRF. Any required future decontamination and decommissioning activities will be performed in accordance with applicable regulatory agreements and requirements to ensure that human health and environment are protected. NRF is not discussed further in this document.

Figure 3-1 represents the end state as well as the current state of the INL Site. Although physical features will change significantly in certain developed portions of the Site, they are not visible on Figure 3-1 because of the scale of this map. Changes to specific developed areas of the Site are more thoroughly described in Section 4 of this report. Likewise, changes between current state and end state are more clearly depicted in the individual hazard area maps in Section 4.

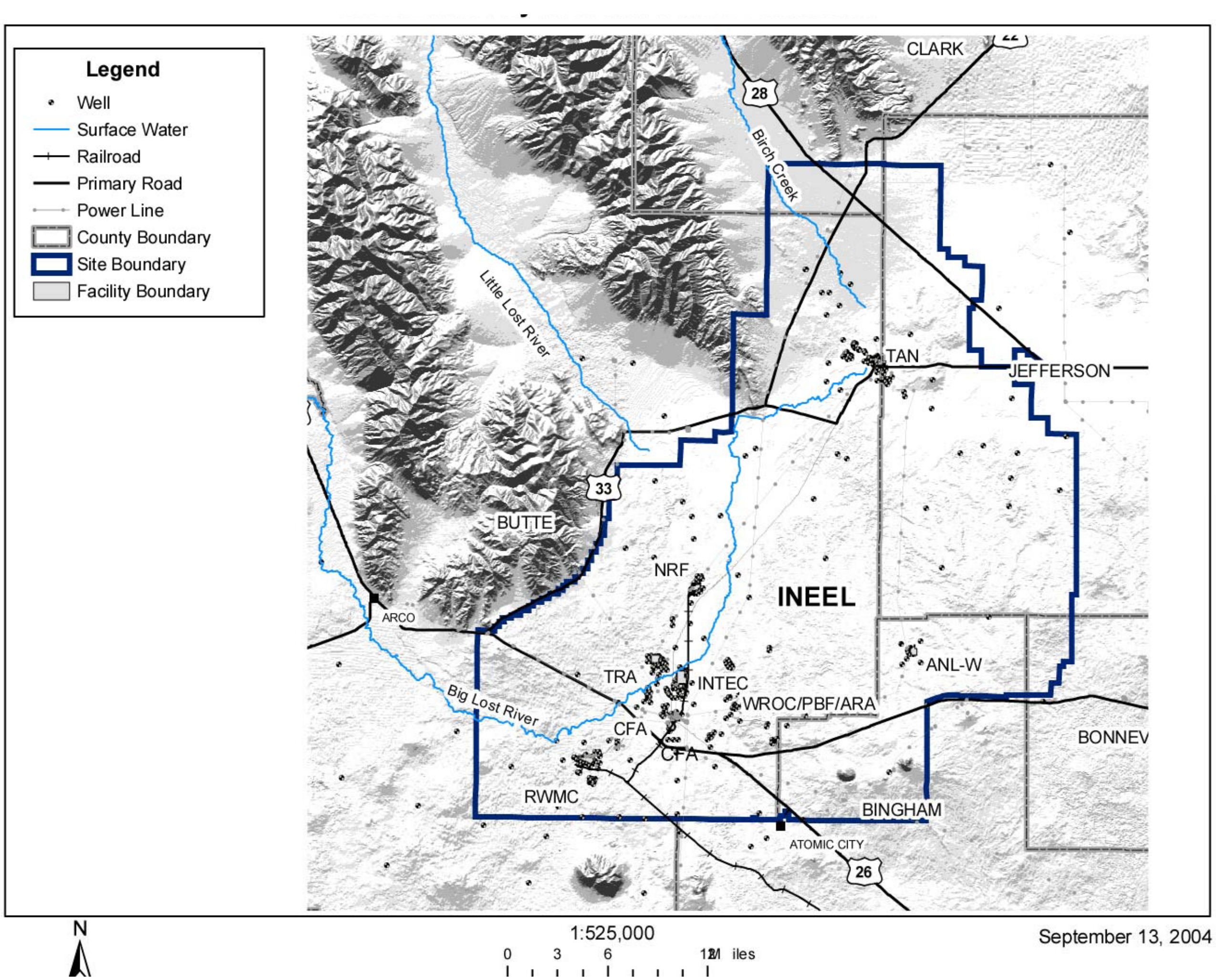

Figure 3-1. Site physical and surface interface.

3.2 Human and Ecological Land Use

The *Idaho National Engineering and Environmental Laboratory Comprehensive Facility and Land Use Plan* (hereinafter referred to as the INL Comprehensive Facility and Land Use Plan [CFLUP]) (DOE-ID 1997a) describes land use for the INL. Acreage within the INL is classified as industrial and mixed use by the BLM. Most of the work at the INL is performed within the Site's discrete primary facility areas. Presently, access to INL facilities requires proper clearance, and training or escort, and controls are in place to limit the potential for unacceptable exposures. A security force is used to limit access to approved personnel and visitors. These controls will remain in place as long as there is an active DOE mission.

The great majority of the Site is undeveloped. Restricted access to INL land provides protection of important ecological and cultural resources. A map showing current and end state land use is provided as Figure 3-2. There are no differences between the current and end states, as the current land uses described below are expected to remain the same at the end of the EM cleanup mission.

3.2.1 Ecological Resources Preservation

The INL Site is located at the mouth of several mountain valleys through which large numbers of migratory birds of prey and mammals are funneled onto the Site. During some years, hundreds of birds of prey and thousands of pronghorn antelope and sage grouse live year round or winter on the INL Site. About 30% of Idaho's pronghorn antelope population uses the INL Site as a winter range. Mule deer and elk also reside on the Site. Predators observed on the Site include bobcats, mountain lions, badgers, and coyotes. In all, over 270 vertebrate species have been observed, including 43 mammal, 210 bird, 11 reptile, nine fish, and two amphibian species.

Aquatic communities on the INL depend largely on the flow of the Big Lost River. The river flows intermittently across about 30 miles of the INL from southwest to north before it terminates in the Big Lost River Sinks. No water reaches the INL section of the Big Lost River during drought years or during periods when water is diverted upstream of the INL for agricultural and flood prevention purposes.

The INL Site contains one of the largest areas of undeveloped and ungrazed sagebrush steppe outside of national park lands in the Intermountain West. Approximately 40% of the 890 square miles of INL Site has not been grazed by livestock for the past 50 years, with the balance receiving minimal human influence during that time. This has allowed plant communities to develop into conditions that approximate those that existed before European settlement. In 1999, a portion of the INL was designated a Sagebrush-Steppe Ecosystem Reserve by the Secretary of Energy, U.S. Fish and Wildlife Service, BLM, and Idaho State Fish and Game Department. Recognition of the importance of these communities also resulted in designation of the INL as the second of DOE's National Environmental Research Parks in 1975. These designations support continued protection of ecological resources at the INL.

As shown on Figure 3-2, the Sagebrush-Steppe Ecosystem Reserve is located in the northwest corner of the INL and covers approximately 73,263 acres. A management plan for the INL Sagebrush-Steppe Ecosystem Reserve has been prepared by the BLM and DOE with input from the Idaho Department of Fish and Game, U.S. Fish and Wildlife Service, and the Tribes. The Sagebrush-Steppe Ecosystem Reserve will be managed as a laboratory where all native ecosystem components, cultural resources, and Native American tribal values are conserved. Management will focus on providing opportunities for scientific investigation of resources present on the reserve. The draft management plan discusses wildfire suppression, livestock grazing, road management, weed control, and protection of cultural resources.

3.2.2 Cultural Resources Preservation

The INL Site is home to a wide variety of important cultural resources representing the entire greater-than-12,000-year span of human occupation of Southeastern Idaho. INL cultural resources include artifacts, sites, structures, and properties that represent several periods of Southern Idaho prehistory and history. There are special challenges associated with balancing the preservation of these sites with the management and ongoing operation of an active scientific laboratory. Cultural resource management activities at the INL have been ongoing for more than 40 years. In that time, approximately 8.5% of the undeveloped portion of the 890-square-mile facility has been systematically surveyed, the buildings have been evaluated for their historical significance, and local tribal people whose aboriginal homelands included the INL (Shoshone-Bannock) have become active participants in cultural resource management. Inventories of other INL property types (such as historic objects, structures, and records and Native American sacred sites) are ongoing.

Archaeological sites reflecting thousands of years of use by hunting and gathering cultures and several centuries of farming, ranching, and other emigrant activities number over 2,000 in the inventories that have been completed. Ongoing communication and cooperation between DOE and the Tribes under the *Agreement-in-Principle between the Shoshone-Bannock Tribes and the United States Department of Energy* (DOE 2002a) have shown that many archaeological sites in the region are regarded as ancestral and important to tribal culture. Natural landforms and native plants and animals of the INL region also are of sacred and traditional importance, and although rare, human burials are of special concern. Sensitive cultural remains have been found in the PBF area.

In recognition of these unique tribal values, DOE provides tribal members with unrestricted access to certain areas of the INL for activities related to the maintenance of tribal heritage, education of tribal members, and exercise of traditional cultural activities (DOE 2002a). The Tribes have unrestricted access to a 6-square-mile area known as the Middle Butte Cave Area. Their use of this area is governed by a memorandum of agreement. Tribal members visit this area once or twice a year in groups of up to 40–50 people, including children. Activities conducted onsite include gathering of plants, ceremonies, and education of tribal members. This area is located on the south side of Highway 20 and therefore is not near any contaminated sites or active industrial areas. Arrangements also can be made with DOE to visit other places of importance to tribal members.

In addition, DOE invites staff from the Shoshone-Bannock Tribes Cultural Resource Management Program to participate in archaeological surveys conducted before ground disturbance so that they can provide information and guidance for protection of sensitive tribal resources. The Tribes also are invited to observe activities that involve ground disturbance at PBF, so that they can assist in monitoring for any sensitive cultural remains that may be discovered. The tribal members are escorted by trained INL employees during these activities. Typically, two to six people participate approximately once a month in archaeological surveys. Communication and interaction are fostered through these field activities as well as monthly meetings of the Cultural Resources Working Group, which includes tribal, DOE, and contractor representatives. Through these mechanisms, the Tribes are active participants in the cultural resource preservation process.

In addition to archaeological sites and artifacts, many more recent historic architectural properties exist on the INL. Of the more than 500 buildings surveyed, 160 have been determined to be eligible for the National Register of Historic Places. Fifteen INL buildings have been designated as signature properties. “Signature properties” is a term coined by the DOE that denotes its most historically important properties across the complex or those properties that are viewed as having tourism potential. These properties will be evaluated to determine their ultimate disposition. Some may be preserved for their historic value, while others may be documented for potential inclusion in Historic American Building

Survey/Historic American Engineering Record reports and then demolished. One building, the Experimental Breeder Reactor I, is a National Historic Landmark. It is open daily for public tours from Memorial Day through Labor Day.

Strategies for the effective management of INL cultural resources have been developed in conjunction with pertinent INL programs and are detailed in the *INEEL Cultural Resource Management Plan* (DOE-ID 2004a) and the *INEEL Historic Architectural Properties Management Plan* (Braun 2003).

3.2.3 Environmental Research

As the shutdown of INL facilities and environmental restoration of INL land play greater roles, environmental studies are becoming increasingly important elements of land-use planning. These studies provide INL scientists, engineers, and planners with information about how nuclear reactor research has affected the environment and the extent of remediation necessary to restore the land. In addition, INL scientists and engineers are researching and developing technologies to mitigate the effects of environmental contamination and to preserve the environment during current and future INL operations. An extensive environmental surveillance program is in place for air, soil, surface and subsurface water, big game animals, and local produce (e.g., potatoes, wheat, lettuce, and dairy milk) for the INL Site and surrounding areas.

The INL Site was designated a National Environmental Research Park in 1975. The DOE has established seven such parks within the DOE laboratory complex. In many cases, these protected lands became the last remaining refuges of what were once extensive natural ecosystems. The National Environmental Research Parks provide rich environments to train researchers and introduce the public to ecological sciences. They have been used to educate grade school and high school students and the general public about ecosystem interactions at DOE sites; to train graduate and undergraduate students in research related to site-specific, regional, national, and global issues; and to promote collaboration and coordination among local, regional, and national public organizations; schools; universities; and federal and state agencies. The parks are field laboratories set aside for ecological research and the study of environmental impacts from nuclear energy development. National Environmental Research Parks also help fulfill the DOE's policy for good stewardship of its land by supplying research and data needed for proper land management. Research results are published in reports, peer-review journals, and conference proceedings.

3.2.4 Grazing

The amount of INL land used for grazing varies from year to year, but about 60% of the INL is open to livestock grazing. A 900-acre portion of this land, located at the junction of Idaho State Highways 28 and 33, is used by the U.S. Sheep Experiment Station as a winter feedlot for about 6,500 sheep. No grazing is permitted within 1/2 mile of any primary facility area boundaries.

Rights of way and grazing permits for INL lands are granted and administered by the BLM. Thirty-four ranchers currently hold grazing permits on INL land. The BLM is responsible for managing and controlling grazing on the INL Site. In order to keep cattle and sheep away from facility areas or contaminated sites, grazing operators are provided with a map showing the areas in which grazing is allowed, and they are instructed to stay away from visible facility areas. Most of the cattle allotments are fenced; however, there are some areas where fences are not present. In years of abundant water (when the Big Lost River is flowing), both cattle and sheep are difficult to control. If cattle or sheep are found outside of the approved grazing areas, DOE notifies the BLM, and the BLM notifies the operators. A memorandum of understanding between DOE and the BLM is in place, and the BLM and DOE representatives meet annually to review concerns and successes and to identify any needed changes.

3.2.5 Hunting

Controlled hunting also is permitted on INL land but is restricted to 1/2 mile inside the boundary. Each year, the Idaho Department of Fish and Game and the DOE determine whether to allow controlled hunts of wild game populations on INL land. The purpose of these hunts is to reduce potential movement of animals off INL property and onto private lands where crops may be damaged. Hunts have so far been restricted to pronghorn antelope, elk, and coyotes.

3.2.6 Future Land Use

The preferred future land uses for the INL Site were identified in an effort, starting in 1992, to project reasonable future land-use scenarios at the INL in order to facilitate decisions about environmental restoration activities at the Site. The effort was completed in 1995 and published in the *Long-Term Land Use Future Scenarios for the Idaho National Engineering Laboratory* (DOE-ID 1995b).

The effort to identify future land-use scenarios included reviewing DOE plans, policy statements, and mission statements pertaining to the INL; reviewing surrounding land-use characteristics and county development policies; reviewing environmental and development constraints that could influence future land use at the INL Site; and soliciting participation and input from a public forum. The forum included members from local counties and cities; Tribes; BLM; DOE; U.S. Forest Service; U.S. Park Service; Idaho Department of Transportation; Idaho Fish and Game; and eight business, education, and citizen organizations. The EPA and the Idaho Department of Health and Welfare participated in an ex officio capacity.

The future land-use projections for the INL were adopted into the first edition of the INL CFLUP (DOE-ID 1997a), which again underwent an extensive stakeholder review process that included a public participation forum, a public comment period, and the INL Citizens Advisory Board.

It is expected that the planning assumptions and resulting long-term scenarios that support INL land-use projections will need periodic revision to reflect new developments or changing assumptions.

INL will be a multiprogram national laboratory, supporting the current and future needs of DOE Idaho Operations Office, DOE Office of Naval Reactors, and other DOE offices, together with other federal agencies such as the Department of Defense and Department of Homeland Security. The INL will conduct programs in four assigned vision and mission areas:

- Advancing nuclear energy technology: INL will provide leadership, technology, and engineering demonstration support for current and future operating reactors and advanced nuclear energy systems

- National security technology development and testing: INL expertise will continue to provide solutions to problems in the defense and intelligence communities

- Providing advanced technology services and support: future services and support will range from continued irradiation and fuels testing for the Naval Nuclear Propulsion Program to developing and demonstrating lightweight armor products for the Department of Defense

- Conducting basic science research: advances in basic science will span many fields, including materials science and testing, biological sciences, subsurface science, nuclear fuels, and fusion safety.

There is no projected end date for the NE mission. It is anticipated that less than 2% of the site will be used for industrial use, while the remainder will serve as a buffer zone for security reasons and be available for environmental research, ecological and cultural preservation, and controlled grazing and hunting. Most work at the INL will continue to be performed within or near the Site's discrete primary facility areas, but it is possible that new facilities may be constructed outside the established facility areas to support NE mission needs. No significant change to the present INL boundaries or ownership is anticipated during the active NE mission.

The INL CFLUP (DOE-ID 1997a) projects land use for only 100 years. Future land use beyond the 100-year period has not yet been defined. After completion of the EM cleanup mission, it is expected that over 568,000 acres, or 99.9% of the Site, will be available for unrestricted use. It is anticipated that approximately 626 acres (listed in Table 3-1) will require restricted access or use beyond 100 years. These areas represent approximately 0.1% of the Site acreage. It is expected that approximately 69 acres will be available for unrestricted surface use but will require deed restrictions to prevent intrusion or residential use, while about 557 acres will be remediated to a level appropriate for industrial use.

Past cleanup decisions at the INL have been based on scenarios that included possible residential use of the Site after 100 years. Although unrestricted use of much of the Site acreage will be possible after the active DOE mission has been terminated, it is unlikely that there will be any demand for residential use of the site for well over 100 years. This belief is supported by the abundance of open land in the vicinity of the Site and the harsh climate at the Site. A far more beneficial future use for the INL Site, after completion of the DOE mission, would be as a national monument or wildlife preserve. Such land use would offer continued protection for the unique and extensive cultural, historic, and ecological resources on the Site.

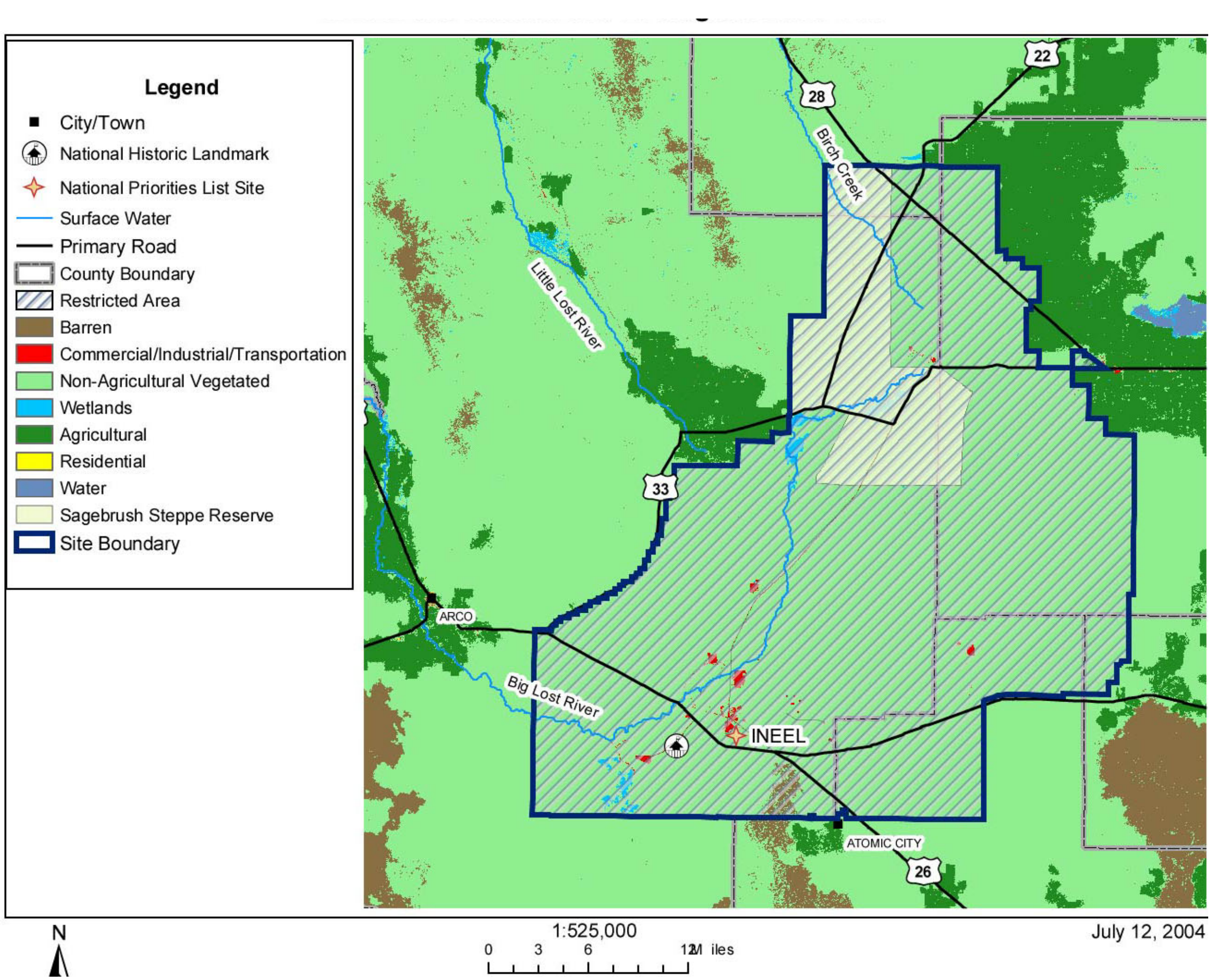

Figure 3-2. Site human and ecological land-use map.

Table 3-1. Sites that are expected to require institutional controls beyond 100 years.

Description	CERCLA Site Number	Building Number	Area (ft^2)	Comments	Use after 100 Years	Map Number	Restricted Industrial (ft^2)	Unrestricted Surface Use (ft^2)
Subsurface Disposal Area at Radioactive Waste Management Complex	Operable Unit 7-13/14	N/A	5,518,228	Former low-level waste disposal facility with some waste removed and some waste grouted in place. Will be covered with an engineered cap and revegetated.	Restricted	Figure 4-33	5,518,228	N/A
INTEC								
Old Waste Calcining Facility	N/A	CPP-633	9,120	Capped facility with radioactive materials entombed below ground (Resource Conservation and Recovery Act landfill closure).	Restricted	Figure 4-27	N/A	N/A
Capped complex (Process Equipment Waste System, New Waste Calcining Facility, and Tank Farm Facility)	N/A	CPP-604, CPP-605, CPP-659, and Tank Farm Facility	99,600	Capped facility with some radioactive materials grouted in place below ground.	Restricted	Figure 4-27	N/A	N/A
Fuel Reprocessing Facility and laboratories	N/A	CPP-640, CPP-601, and CPP-602	118,600	Capped facility with radioactive materials grouted in place below ground.	Restricted	Figure 4-27	N/A	N/A
Area within INTEC fence line	N/A	N/A	13,196,833	Cleaned to industrial standards.	Restricted	Figure 4-27	13,196,833	N/A
Idaho National Laboratory CERCLA Disposal Facility (cells)	N/A	N/A	4,356,000	Former mixed waste disposal facility with engineered cap. Will be covered with soil and revegetated. The two cells are 80 acres, and an additional 20 acres was added as a buffer area.	Restricted	Figure 4-27	4,356,000	N/A
Test Area North								
Water Reactor Research Test Facility Burn Pits II and IV	WRRTF-01	N/A	1,139	Former burn pit for construction debris. Asbestos contamination and construction debris remain below ground. Area was covered with soil and will be revegetated in November 2004.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-18	N/A	1,139
Disposal Pond	TSF-07	N/A	228,632	Elevated risk to future residential receptors because of residual cesium-137.	Restricted	Figure 4-18	N/A	228,632

Table 3-1. (continued).

Description	CERCLA Site Number	Building Number	Area (ft^2)	Comments	Use after 100 Years	Map Number	Restricted Industrial (ft^2)	Unrestricted Surface Use (ft^2)
IET Stack Rubble Site	IET-04	N/A	12,316	IET Stack rubble with fixed radioactive contamination is buried >10 ft deep. Long-term institutional controls are needed to prevent intrusion.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-19	N/A	12,316
Buried Reactor Vessel	TSF-06, Area 10	N/A	2,770	Irradiated reactor vessel in a metal storage tank, buried ≥10 ft deep.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-18	N/A	2,770
Test Reactor Area								
Engineering Test Reactor	N/A	TRA-642, TRA-643, and TRA-644	30,632	Although it may be possible to remove this facility, it is possible that some radioactive materials may be entombed and the area capped. (Final disposition not yet determined.)	Restricted	Figure 4-52	30,632	N/A
Material Test Reactor	N/A	TRA-603	19,352	Former reactor facility and fuel storage basin. Final disposition for this facility has not yet been determined, but it is anticipated that some radioactive materials may be entombed below ground and covered with an engineered cap.	Restricted	Figure 4-52	19,352	N/A
Warm Waste Pond	TRA-03	N/A	284,137	Site contains radiologically contaminated soil below an engineered barrier (10 ft thick). Total risk for residential scenario is expected to diminish to 1 in 10,000 in 1,000 years.	Restricted	Figure 4-51	284,137	N/A
Chemical Waste Pond	TRA-06	N/A	62,077	This site has mercury 14 ft below grade. A native soil cover was placed over the site. The hazard index is >1 for the residential scenario at 14 ft below grade and is not expected to diminish.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-51	N/A	62,077
Sewage Leach Pond	TRA-13	N/A	19,809	Institutional controls required for 500 years for residual cesium-137 at depth. Site has been covered with an engineered cover (10 ft of soil) and revegetated.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-51	N/A	19,809

Table 3-1. (continued).

Description	CERCLA Site Number	Building Number	Area (ft^2)	Comments	Use after 100 Years	Map Number	Restricted Industrial (ft^2)	Unrestricted Surface Use (ft^2)
PCB levels above residential cleanup standard	TRA-619, TRA-626, and TRA-653	N/A	467	PCB contamination was cleaned up to U.S. Environmental Protection Agency industrial standards (25 ppm). Will require permanent deed restrictions to prohibit residential use, as remaining contamination is above the 10-ppm requirement for unrestricted use.	Restricted	Figure 4-52	467	N/A
Soil Surrounding Hot Waste Tanks at TRA-613	TRA-15	N/A	959	Institutional controls will be required for at least 95 more years to allow decay of subsurface radionuclides (cesium-137 and strontium-90). A tank is buried 13 ft below ground.	Restricted	Figure 4-52	959	N/A
Soil Surrounding Tanks at TRA-630	TRA-19	N/A	896	Institutional controls will be required for at least 95 more years to allow decay of subsurface radionuclides (cesium-137 and cobalt-60). Tanks have been removed.	Restricted	Figure 4-52	896	N/A
Brass Cap Area	TRA-Y	N/A	121	Contamination extends about 10 ft below ground. Area was resurfaced with concrete after leaking waste line was repaired. Institutional controls will be required for at least 95 more years to allow decay of radionuclides (cesium-137 and cobalt-60).	Restricted	Figure 4-52	121	N/A
Sitewide Soil								
Leach Pond	BORAX-01	N/A	7,200	Elevated risk to future occupational and residential receptors because of residual cesium-137.	Restricted	Figure 4-6	7,200	N/A
Site of Buried BORAX I Reactor	BORAX-02	N/A	9,966	Residual cesium-137 underlying an engineered basalt riprap barrier. Cesium will decay to unrestricted-use levels in approximately 300 years.	Restricted	Figure 4-6	9,966	N/A
BORAX V Ditch	BORAX-08	N/A	13,367	Elevated risk to future occupational and residential receptors because of residual cesium-137.	Restricted	Figure 4-6	13,367	N/A

Table 3-1. (continued).

Description	CERCLA Site Number	Building Number	Area (ft^2)	Comments	Use after 100 Years	Map Number	Restricted Industrial (ft^2)	Unrestricted Surface Use (ft^2)
Entombed BORAX II through V Reactor Buildings	BORAX-09	N/A	3,492	Reactor components were entombed with concrete below ground. Area was covered with clean soil and seeded with native grasses. Contaminant of concern is cesium-137.	Restricted	Figure 4-6	3,492	N/A
Leach Pond	OMRE-01	N/A	1,886	Elevated risk to future occupational and residential receptors because of residual cesium-137.	Restricted	Figure 4-7	1,886	N/A
Juniper Mine	ORD-21	N/A	400	16,000 lb of explosive material buried 135 ft below ground (buried in 1974).	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-8	N/A	400
Central Facilities Area								
Closed landfill	CFA-01	N/A	466,104	Capped with engineered native soil cover. Industrial waste with some asbestos and chemicals present below risk-based levels. Area was capped because of some uncertainty regarding waste type and composition.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-38	N/A	466,104
Closed landfill	CFA-02	N/A	712,492	Capped with engineered native soil cover. Industrial waste with some asbestos and chemicals present below risk-based levels. Area was capped because of some uncertainty regarding waste type and composition.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-38	N/A	712,492
Closed landfill	CFA-03	N/A	647,941	Capped with engineered native soil cover. Industrial waste with some asbestos and chemicals present below risk-based levels. Area was capped because of some uncertainty regarding waste type and composition.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-38	N/A	647,941
French Drains	CFA-07	N/A	320	French drains were removed, but lead above 400 mg/kg and radionuclides may be present at depths greater than 13 ft.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-38	N/A	320

Table 3-1. (continued).

Description	CERCLA Site Number	Building Number	Area (ft^2)	Comments	Use after 100 Years	Map Number	Restricted Industrial (ft^2)	Unrestricted Surface Use (ft^2)
Sewage Treatment Plant Drainfield	CFA-08	N/A	306,508	Residual cesium-137 requires controls to prevent intrusion for 185 years. Area has been capped with an engineered native soil cover and revegetated.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-38	N/A	306,508
Operating Asbestos Landfill	N/A	N/A	480,000	This industrial waste facility will be covered with soil and revegetated. Long-term institutional controls will be needed to prevent intrusion.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-38	N/A	480,000
Waste Reduction Operations Complex/PBF and Auxiliary Reactor Area								
SL-1 Burial Ground	ARA-06	N/A	179,963	Engineered barrier with entombed reactor debris. Controls will be required for 400 years to allow residual radioactivity to decay to levels that support unrestricted use.	Restricted	Figure 4-44	179,963	N/A
PBF Reactor	N/A	PBF-620	8,044	Former reactor and fuel storage basin. Final disposition of this facility is not yet determined, but it is anticipated that some radioactive materials will be entombed below ground and that the facility will be capped.	Restricted	Figure 4-45	18,902	N/A
ARA-III Soil Contamination	ARA-24	N/A	400,409	Remediation complete, but a buried pipe embedded in concrete remains 20 ft below ground.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-44	N/A	400,409
Soil Beneath ARA-626	ARA-25	N/A	521	Elevated arsenic, cesium-137, copper, and lead remain at the basalt interface. Institutional controls required to prevent intrusion.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-44	N/A	521
PBF Reactor Area Rubble Pit	PBF-13	N/A	2,905	Pit was backfilled with clean soil and covered with basalt rubble. Construction waste, including possible friable asbestos, at depth.	Unrestricted surface use with deed restrictions to prevent intrusion	Figure 4-45	N/A	2,905

Table 3-1. (continued).

Description	CERCLA Site Number	Building Number	Area (ft^2)	Comments	Use after 100 Years	Map Number	Restricted Industrial (ft^2)	Unrestricted Surface Use (ft^2)
PBF SPERT-IV Leach Pond	PBF-22	N/A	52,192	Elevated risk to future residential receptors because of the presence of contaminants.	Restricted	Figure 4-45	52,192	N/A
PBF SPERT-IV Lake	PBF-26	N/A	330,887	Restricted to industrial land use indefinitely because of residual arsenic, PCBs, and radionuclides (cesium-137, uranium-235, and uranium-238).	Restricted	Figure 4-45	330,887	N/A
			27,252,457	ft^2			24,243,254	3,009,203
			626	acres			557	69

BORAX = Boiling-Water Reactor Experiment
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
IET = Initial Engine Test
INTEC = Idaho Nuclear Technology and Engineering Center
N/A = not applicable
PBF = Power Burst Facility
PCB = polychlorinated biphenyl
ppm = parts per million

3.3 Site Context Legal Ownership

In November 1947, the Atomic Energy Commission (now the DOE) began examining the pros and cons of developing a site where nuclear research reactors could be constructed to augment those at Hanford, Washington. The Commission found the Idaho site attractive for reasons that included its remote location, soil that afforded good drainage without rapid run-off, a plentiful supply of groundwater needed for reactor coolant and other industrial processes, and the fact that it was already the site of the Arco Naval Proving Ground.

The Commission approved the Idaho site as its new research reservation on March 1, 1949. The acquisition proceedings lasted several more months, culminating in a presidential directive that transferred the Arco Naval Proving Ground to the jurisdiction of the Atomic Energy Commission. In subsequent years, this land was augmented through a series of withdrawals from the public domain and purchases of state and private lands.

Between 1946 and 1958, a total of 505,832 acres (89% of the current-day INL Site) were withdrawn from the public domain through a series of decrees called public land orders. Even though withdrawn lands were transferred to the INL, the public land orders provide for certain responsibilities to remain with the BLM, including the administration of grazing permits on the INL Site, granting utility rights of way across INL land, extracting materials, and controlling wildfires, weeds, insects, and predators. However, the public land orders also require that the DOE be consulted before final decisions are made about these actions.

Several parcels of state-owned land that amounted to 21,308 acres and 43,275 acres of land acquired from private parties were interspersed with land that was withdrawn from the public domain to form the INL Site. The Commission obtained these parcels to form a totally intact land area for the INL Site.

The land area for the INL Site totaled 570,415 acres at the culmination of land acquisitions and resulted in a unified site area. Subsequently, however, a transfer in January 1994 of 1,120 acres and a transfer in 1997 of 160 acres were made to the BLM, which in turn sold the land to Jefferson County to enable them to establish a multicounty landfill. The current-day INL land area consists of 569,135 acres (889 square miles).

INL land that was purchased by DOE from the State of Idaho and from private parties is owned by DOE. INL land that was obtained though land withdrawals is owned by the BLM. DOE has the right to conduct its missions on BLM land within the INL boundary until such time as the land is no longer needed by DOE. DOE currently has no end date projection for use of INL land within the current Site boundary. Accordingly, INL land ownership as it exists today is forecasted to be the same in 2035 and beyond. In the event that the DOE mission should be discontinued at some point in the future, management of the land would revert to the BLM, with the exception of parcels of land that are owned by DOE, which would transfer to the General Services Administration for disposition through the Federal Property and Administrative Services Act.

However, land that still requires institutional controls cannot be routinely declared excess (for disposition by the General Services Administration) or returned to the public domain. The DOE or its successor agency would be responsible for maintaining institutional controls in those areas where residual risk does not allow for unrestricted access until such time that those areas no longer pose a risk to human health or the environment. Contaminated land that is subject to institutional controls is not consistent with the uses of land in the public domain, such as unrestricted entry to locate and develop claims on mineral deposits. The BLM is typically not funded or staffed to assume responsibility for institutional controls, so the BLM could not be expected to accept lands burdened by such use restrictions. If there was a compelling reason to transfer INL land containing residual contamination subject to institutional controls to a nonfederal entity, then DOE or its successor agency would be required by CERCLA Section 120(h) to protect the public interest by providing full information about the contamination and the actions taken in response to it to the prospective transferee and providing with the deed a warranty affirming (a) that all necessary remedial actions have been completed and (b) that if further remediation becomes necessary in the future because of residual DOE contamination, the U.S. will take responsibility for such additional remediation. Any such deed would need to include land-use restrictions consistent with the institutional controls imposed by the applicable CERCLA ROD. Because of the continuing federal government liability for residual contamination, the U.S. would need to confirm that the recipient of the transferred land is responsible and capable of long-term, safe management of the land. The U.S. would need to retain certain rights concerning the land, including a restriction on further transfer of title without U.S. government approval and the right to enter the property to confirm that deed restrictions are being complied with and to perform any necessary remedial investigation or remedial action. In addition, such a proposed transfer of contaminated land would need to be analyzed for potential environmental impacts under NEPA, including analysis of the potential for new releases of hazardous substances and consideration of public comments. Because of these legal hurdles to transfer INL lands that are subject to institutional controls, such a transfer will be difficult and, in light of the extensive adjacent undeveloped land at the INL that is not burdened by such considerations, highly unlikely.

Legal ownership of the INL Site is shown in Figure 3-3.

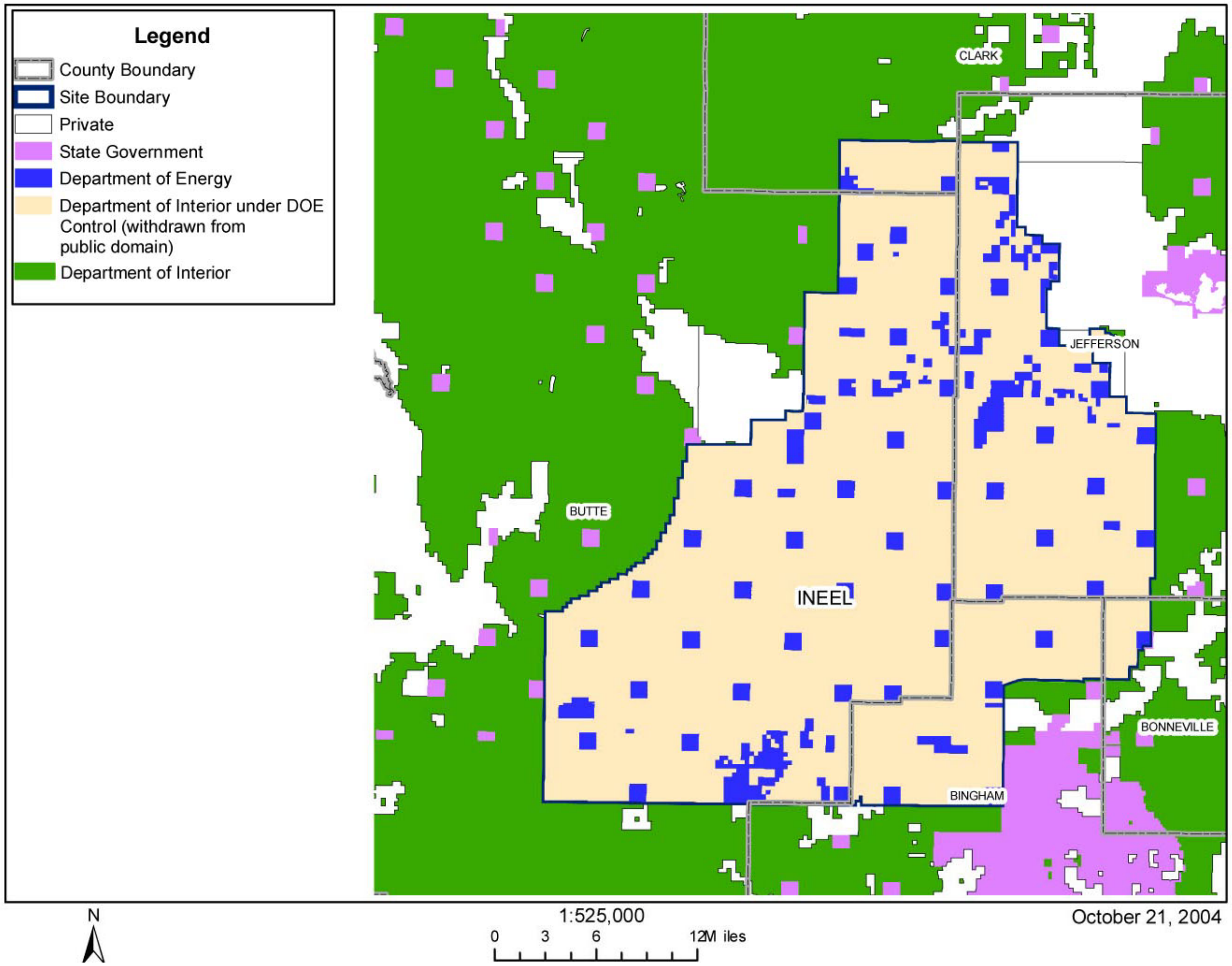

Figure 3-3. Site legal ownership.

3.4 Site Context Demographics

A map showing the population in the immediate vicinity of the INL Site (based on the U.S. Census data for 2000) is provided as Figure 3-4. Current population centers in the region are shown on Figure 2-3.

The rural population immediately surrounding the Site is sparse, with most counties ranging from 15 to 62 individuals per square mile. Butte County has the lowest population density at 1.3 individuals per square mile. Bonneville County, with the City of Idaho Falls as its population center, has 44.2 individuals per square mile. Most of the land next to the Site is open land owned by the BLM and therefore not available for residential use. Private land next to the Site is primarily used for single-family farms, ranches, and residences. Several small, agricultural towns, with populations less than 1,000, flank the Site boundary. The towns of Arco, Butte City, Moore, and Howe are located to the west of the Site in Butte County, while the towns of Monteview, Mud Lake, and Terreton are located east of the Site in Jefferson County. Atomic City is located south of the Site in Bingham County. Detailed statistical information on Idaho is available from the U.S. Census Web site, http://www.census.gov/, or the State of Idaho homepage, http://www.state.id.us/.

The INL work force peaked at 11,961 employees in 1995 but has steadily decreased since then. Approximately 8,000 people currently work at the INL. Approximately 65%, or 5,300 individuals, commute to the desert Site on weekdays, returning home each evening. During the weekends, the INL maintains a skeleton crew; however, there are no permanent residents living within the boundaries of the INL. The INL work force resides primarily in Bonneville County to the east of the Site, with Bingham, Bannock, Butte, Jefferson, and Madison Counties and the Shoshone-Bannock Reservation also contributing to the worker population.

Figure 2-4 shows the anticipated population in the vicinity of the INL Site at the end of the EM cleanup mission. In order to make projections on population density in the 2035 timeframe, several sources of information were used. Some population forecasts for 2010 are available from the U.S. Census Web site. Two population forecast reports prepared by Intermountain Demographics of Boise, Idaho, provide information on anticipated population growth through 2015 for Bonneville County and through 2020 for Bannock County (Intermountain Demographics 1996; Intermountain Demographics 2000). Information also was gathered from discussions with county planning and zoning commissioners for Fremont, Jefferson, Butte, Bannock, Bonneville, and Madison Counties and with planning and zoning departments for the cities of Idaho Falls, Pocatello, Blackfoot, and Rexburg.

It is not expected that significant population growth will occur in rural areas in Butte, Jefferson, Clark, and Bingham Counties. Most of the arable land surrounding the Site has been or is in production, and it is anticipated that no new arable land will go into production by 2035. Agriculture in the area is constrained by lava flows, temperature extremes that characterize high desert plateaus, and availability of surface and aquifer water for irrigation. Southeast Idaho has endured severe droughts in the past, and the current drought has affected areas next to the INL. The U.S. Census Web site predicts a 0.05% decrease in the Butte County population by 2010. If severe drought continues, some informal estimates by county planning and zoning commissioners predict a regional population decline of 2% by 2035. If moisture returns, the forecast is for stable population densities in most counties next to the INL. Therefore, Figure 3-4 also represents the anticipated end state population in the vicinity of the Site.

As the EM cleanup work scope is completed, it is anticipated that reductions in the EM work force will continue. Employment reductions also are expected to occur in response to increased outsourcing of employees. In September 2000, the subcontractor number was 14, in comparison to 209 individuals for

2003, indicating an increase in outsourcing. It is not possible to predict the size of the work force that will be needed to support the NE mission in 2035, as projections as far out as 2035 are not available.

Changes to the INL work force were predicted in the *2000, 2005, 2010, and 2015 Employment, Population, and Household Forecasts for Bonneville Metropolitan Planning Organization* (Intermountain Demographics 1996). "In this analysis, it was assumed that Bonneville County INL employment would decrease 4 percent annually, a rate slightly lower than the 1990 to 1995 annual rate." In the 2000 employment forecast, it was assumed that all of that employment reduction would occur in Bonneville County. Reductions in INL employment were forecast to cause additional employment reductions in the service, retail trade, and government employment sectors. Every basic job was estimated to support 2.59 additional jobs. Conversely, for every basic job reduction, 2.59 jobs were withdrawn from the employment forecast. For instance, in Fiscal Year 2002, the INL reduced its work force by 433 employees. The impact of that reduction is estimated at an additional 1,148 employees.

Nevertheless, because of continued economic diversification, some growth is anticipated in Bonneville County, Bannock County, and Madison County. In 2000, Bonneville County had 87,261 residents, and the forecast for 2015 is 108,455, a 24.3% increase (Intermountain Demographics 1996). Local planning and zoning representatives estimated that by 2035, the population of Bonneville County could reach 130,000. In 2000, Bannock County had a population of 70,100. The forecast population for 2020 is 89,900 (Intermountain Demographics 2002). Local planning and zoning representatives indicated that the population in Bannock County would probably reach 94,000 by 2035. Half of the projected population growth is expected to occur in Pocatello. Madison County had a count of 27,467 individuals in 2000, a 16% increase from the 1990 census figures. It is expected that Madison County will continue to grow at that rate during the forecast period, because of the addition of the 4-year college (BYU Idaho), the professionals the college will attract, and the increase in housing at the north end of the county by retirees attracted to recreational activities. These population increases are shown on Figure 2-4.

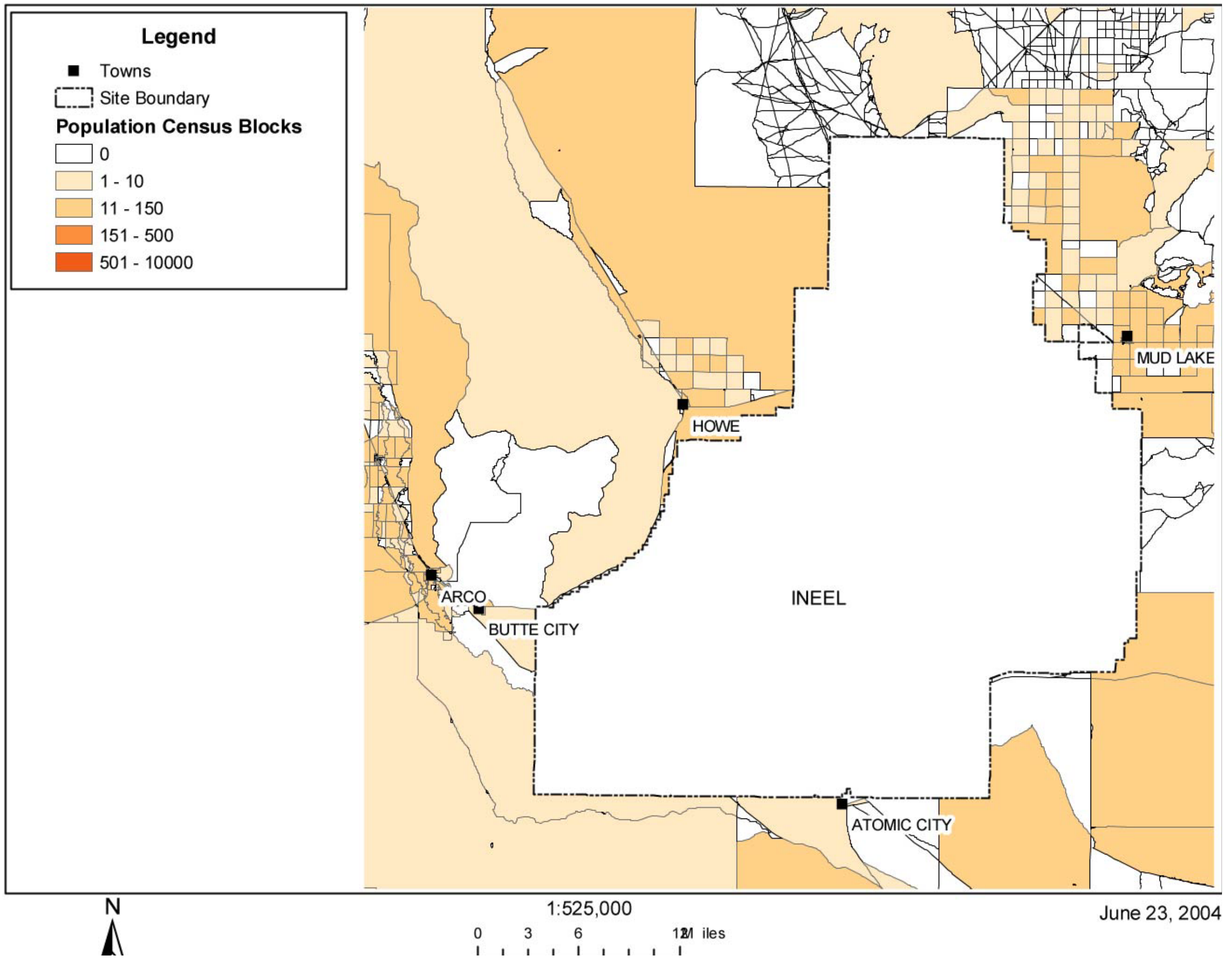

Figure 3-4. Site demographics.